What is claimed is:

1. An apparatus for detecting the presence of an analyte in ambient air, the apparatus comprising

a sensing element comprising a surface having a coating of chemoselective material that selectively interacts with the analyte and means to detect the selective interaction of the chemoselective material with the analyte,

a housing that encloses an environment surrounding the sensing element, the housing including an inlet port connected to a sampling pump for taking a gaseous sample from ambient air into the housing under pressure,

device for sealing the environment surrounding the sensing element so that the environment surrounding the sensing element can be isolated from ambient air and evacuated, and

an outlet port connected to a vacuum pump for removing the gaseous sample from the environment surrounding the sensing element, wherein the size and orientation of the inlet port are selected so that the gaseous sample is directed to strike the sensing element in a turbulent flow that is substantially perpendicular to the surface having the chemoselective material.

2. The apparatus of Claim 1 wherein the inlet port includes a tubular passageway having a direction that is substantially perpendicular to the surface of the sensing element and terminates in an opening that is spaced apart from the surface of the sensing element, so that a gaseous sample passing through the inlet port is propelled onto the surface of the sensing element in a turbulent flow; wherein the outlet port comprises an annular cavity; and wherein the chemosilective material is a chemoselective polymer.

3. An apparatus for detecting the presence of at least one analyte in ambient air, the apparatus comprising

(a) at least one sensing element comprising a surface having at least one coating of chemoselective material that selectively interacts with the at least one analyte and means to detect the selective interaction of the at least one chemoselective material with the at least one analyte,

a housing that encloses an environment surrounding the at least one sensing element, the housing including an inlet port connected to a sampling pump for taking a gaseous sample from ambient air into the housing under pressure, means for sealing the environment surrounding the sensing element so that the environment surrounding the at least one sensing element can be isolated from ambient air and evacuated, and an outlet port connected to a vacuum pump for removing the gaseous sample from the environment surrounding the at least one sensing element,

wherein the size and orientation of the inlet port are selected so that the gaseous sample is directed to strike each at least one sensing element in a turbulent flow that is substantially perpendicular to the surface of the sensing element having the chemoselective material, and

(b) a fast signal kinetic chemical detector,

wherein the at least one sensing element of (a) and the ion mobility spectrometer of (b) both produce a signal response and wherein the apparatus includes means to merge and simultaneously analyze the signal response of the at least one sensing element of (a) and the detector of (b).

4. An apparatus for detecting presence of an analyte in ambient air which does not require a warm-up period comprising

a first valve for allowing entry/blocking of the ambient air that may contain the analyte,

a sensing element having a chemoselective material on its surface for selectively interacting with the analyte,

a sensor for detecting the interaction of said sensing element with the analyte,

a housing that encloses environment surrounding said sensing element,

an inlet port associated with said housing for passing the sample against said sensing element, the size and orientation of said inlet port are selected so that the air is directed to strike said sensing element in a turbulent flow that is substantially perpendicular to said sensing element,

a device for sealing the environment surrounding said sensing element so that the environment surrounding said sensing element can be isolated from the air and evacuated,

an outlet port for passing the air from the environment surrounding said sensing element, and

a pump connected to said outlet port for drawing the air in against the sensing element.

5. The apparatus of claim 4 wherein said first valve is a 3-way valve; wherein said inlet port is tubular and is disposed substantially perpendicularly to said sensing element; and said pump is a vacuum pump.

6. The apparatus of claim 4 including a scrubber in concert with said pump for removing the analyte from the air to yield a scrubbed air; and a third valve connected to said scrubber providing the scrubbed air to said sensing element.

7. The apparatus of claim 4 including a fourth valve connected between said pump and said

scrubber.

8. The apparatus of claim 7 including a second valve between said third and said first valves.

9. The apparatus of claim 8 wherein said first valve is a 3-way valve, said second valve is a 2-way valve, said third valve is a 2-way valve, said fourth valve is a 3-way valve, and wherein size of said pump is such as to produce flow rate of about 7 l/min.

10. The apparatus of claim 8 wherein said inlet port is tubular and is disposed substantially perpendicularly to said sensing element, and said pump is a vacuum pump.

11. The apparatus of claim 10 wherein said sensing element is about 0.3" x 0.05" , said sensing element is disposed about 0.1" from said inlet port , said inlet port is about 0.4" in diameter, and the air is directed substantially perpendicularly at said sensing element at a flow rate sufficient to obtain turbulent flow.

12. A method of monitoring ambient air to detect the presence of an analyte, the method comprising the steps of

(a) providing an apparatus that comprises a sensing element comprising a surface having a coating of chemoselective material that selectively interacts with the analyte and means to detect the selective interaction of the chemoselective material with the analyte, a housing that encloses an environment surrounding the sensing element, the housing including an inlet port connected to a sampling pump for removing a gaseous sample from ambient air and taking the gaseous sample into the housing under pressure, wherein the size and orientation of the inlet port are selected so that the

gaseous sample is directed to the sensing element in a turbulent flow that is substantially perpendicular to the surface having the chemoselective material coating, an outlet port for removing the gaseous sample from the environment surrounding the sensing element and means for sealing the environment surrounding the sensing element so that the environment surrounding the sensing element can be isolated from ambient air and evacuated,

(b) sealing the environment surrounding the sensing element from ambient air and evacuating the environment, so that a baseline for the sensing element is established,

(c) removing a gaseous sample from ambient air and taking the gaseous sample into the housing under initially reduced pressure so that the gaseous sample is directed to strike the sensing element in a turbulent flow that is substantially perpendicular to the surface having the chemoselective material coating, whereby molecules of the analyte, if present in the gaseous sample, interact with the chemoselective material and wherein any such interaction is detected, and whereby non-analyte molecules in the gaseous sample are propelled by the turbulent flow towards the outlet port, and (d) repeating steps (b) - (c) to cyclically monitor the ambient gas for the presence of the analyte and restore the sensing element to its baseline.

13. A method of monitoring ambient air to detect presence of an analyte therein, the method comprises the steps of

(a) drawing in the air that may contain an analyte,

(b) projecting the air at a sensing element in a turbulent flow by flowing the air at the sensing element, the sensing element having on its surface a chemoselective material that

selectively interacts with the analyte, and

(c) detecting the interaction of the analyte with the sensing element.

14. The method of claim 13 including the step of restoring baseline condition of the sensing element in less than about 2 seconds by flowing a scrubbed gas into the sensing element.

15. The method of claim 13 including the step of restoring baseline condition of the sensing element by flowing ambient air into the sensing element.

16. The method of claims 13 including the steps of passing the air through a scrubber, after the air has been projected against the sensing element, where the analyte is removed from the air and then cleaning the sensing element with the scrubbed air to reset the baseline condition thereof.

17. The method of claim 16 including the step of passing the scrubbed air to a valve where the scrubbed air is blocked/allowed to proceed.

18. The method of claim 17 including the steps of separately passing/blocking flow of the air to the sensing element and separately passing/blocking flow of the scrubbed air to the sensing element in order to restore baseline condition of the sensing element.

19. The method of monitoring ambient air to detect presence of an analyte, the method comprising the steps of

(a) drawing air from ambient air that may contain an analyte against a sensing element coated with a chemoselective material which selectively interacts with the analyte in a turbulent flow to increase effectiveness of the chemoselective material,

(b) scrubbing the air of analyte, the air coming from the sensing element,

(c) cleaning the sensing element by flowing the scrubbed air thereover in order to restore the sensing element to its baseline condition,

(d) drawing unscrubbed air from the ambient air, and

(e) detecting the selective interaction of the sensing element with any analyte that may be in the air.

20. The method of claim 19 including the steps of sealing the environment surrounding the sensing element when the sensing element is interacting with the unscrubbed air and sealing th environment around the sensing element when the sensing element is cleaned with scrubbed air.

21. The method of claim 20 including the step of restoring baseline condition of the sensing element in less than about 2 seconds by flowing scrubbed gas onto the sensing element.

22. The method of claim 21 including the step of sensing a different analyte which has different response and different recovery from the analyte already sensed.

23. The method of claim 21 including the step of differentiating between analytes sensed with a sensor coated with one chemoselective material.

24. The method of claim 21 wherein temperature and/of humidity effects on sensing ambient air to detect presence of an analyte is eliminated.

25. The method of claim 21 wherein a single chemoselective material on the sensing element senses multiple analytes.